ARM
Atmospheric Radiation Measurement

Fact Sheet

U.S. Department of Energy

ARM Data Archive

The Atmospheric Radiation Measurement (ARM) Program conducts scientific field experiments studying atmospheric radiation balance, cloud feedback processes, and other atmospheric and environmental issues. These experiments generate enormous amounts of data, which are available to the public through the World Wide Web.

The ARM Data Archive, launched in 1992 at the Oak Ridge National Laboratory in Oak Ridge, Tennessee, serves as the chief repository for these data and provides a gateway for access to them. The Archive stores and manages ARM data files in a large, robotically controlled tape library. Most of the available data are either in the netCDF or the HDF format.

By November 2001, the Archive had collected more than 15,000 gigabytes of data in 5 million files. Researchers had requested more than 3.3 million files from the Archive.

Gaining Access to ARM Data

The Archive provides access to its file collection through the ARM Home Page at http://www.archive.arm.gov. Users need a Web browser (Netscape 3.0 or higher), email address, tools for Internet file transfer protocol, system acceptance of long filenames, and netCDF or HDF tools to retrieve and use files.

Once a free, self-defined Archive account is established, users can obtain data through either a catalog or query interface. In both, data are classified hierarchically by

- Location – Southern Great Plains site, North Slope of Alaska site, and Tropical Western Pacific locale, as well as the Unmanned Aerospace Vehicle Program and selected campaigns.
- Facility type – facilities within a site, for example, the Southern Great Plains has central, boundary, and extended facilities
- Instrument – individual instruments at specific facilities
- Data type – based on the level of processing, from raw data to derived data products.

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The request process leads the user through a series of specifications that define the subset of data needed. When the user is satisfied the request meets individual specifications, he asks the system to locate the necessary files in the tape library. A summary report of the number and size of the files is produced for the user's approval.

Users of the catalog interface have the advantage of viewing their "shopping cart" of files at any time but are limited to netCDF files in a monthly date range. Users of the query interface can review their file selections only at the end of the request process but have more freedom to specify specific date ranges for data. At any stage of using either interface, the user can abort the search and start again.

Once the user approves the order, the names of the requested files are submitted to a retrieval program, which locates the files in the mass storage system and places them on a public FTP site. The system then sends an e-mail to the user confirming the files were retrieved and providing retrieval instructions. The files are held for 7 days under the person's username.

The ARM data from intensive operational periods (IOPs) are stored in an online, documented directory tree. The IOP data collection can be reviewed at http://iop.archive.arm.gov/armiop/. These data can be accessed using an Archive account name for the user name and password. The directory tree has a structural hierarchy of year, site, IOP name, and investigator or instrument name. IOP data files may be downloaded individually, by directory or directory branch, from this server.

About Data Quality and Documentation

ARM has developed structured methods for assessing data quality. These Data Quality Reports, usually applying to data from individual instruments at specific times, are delivered with the Archive user's order.

Additional information describing methods, instruments, and algorithms used for ARM measurements is recorded on the ARM Instruments Web pages at http://www.arm.gov/docs/instruments.html. Information about graphs and other data products is available from the ARM Data Web pages at http://www.arm.gov/data.html.

Whether working on climate change or other research issues, users of the ARM data are encouraged to review all available information on data quality.

For more information contact:

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Printed in U.S.A. on recycled paper (11/14/01).

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